



Risk of Unplanned Retirement and Magnitude of Existing Forward Capacity Procurement

On peak 2,335 kWh x \$1.53000 = \$3,572.18
Mid peak 2,616 kWh x \$0.07981 = \$208.81
Off peak 2,710 kWh x \$0.07981 = \$216.28
Customer charge \$24.00
Franchise fees repr
Your Generation ch
Transition Charge,
DWR provided 21,300

Your Delivery charge
• \$272.05 transmi
• \$2,588.51 distrib
• \$22.99 nuclear
• \$240.17 public
Franchise fees repr
Your Generation ch
Transition Charge,
DWR provided 21,300

Electric Charges
\$351.47 - Baseline Q
Baseline Usage
101-130% of B
131-200% of B
201-300% of Baseline
Over 300% of Baseline
Net Charges \$351.47

DWR
Energy - Summer
On peak 1,993 kWh x \$0.07981 = \$158.95
Mid peak 2,616 kWh x \$0.07981 = \$208.81
Off peak 2,710 kWh x \$0.07981 = \$216.28
Energy - Winter
Mid peak 1,235 kWh x \$0.07981 = \$98.57
Off peak 798 kWh x \$0.07981 = \$63.69
Facilities related demand 360 kW x \$1.86000 = \$669.60

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Presentation Overview

- **Drivers of Risk of Unplanned Early Retirement**
- **Assessing the Magnitude of the Risk of Unplanned Early Retirement**
- **Reliability Planning Assessment Should Inform Track 1 Decision**
- **Magnitude of Existing Forward Capacity Procurement**





Drivers of Risk of Early Retirement

- **Today's Challenge:** the risk of early retirement of existing flexible fossil plants needed for integrating renewables and meeting Once-Through Cooling compliance mandates
- Once-Through Cooling (OTC) Compliance Mandates
 - ▶ OTC plants must undergo major retrofits by compliance dates (2017-2020) or retire
 - ▶ Most OTC plants have Local and Flexible attributes needed for reliability and renewable integration
- Current oversupply of CAISO system capacity and energy
 - ▶ Revenue challenges for plants that are forced to rely solely on the CAISO energy market because they cannot receive RA capacity contracts





Assessing the Risk of Early Retirement

Using 2014 Final NQC List, ORA broke down CAISO's resource fleet into three categories:

1. Flexible OTC Units subject to compliance mandate

- 2012 LTPP Scenario Tool v6 assumes all OTC units will retire in 2020 or earlier based on their mandatory compliance dates

2. Non-OTC Thermal Flexible Units

- 2012 LTPP Scenario Tool v6 assumes units 40 years or older will retire

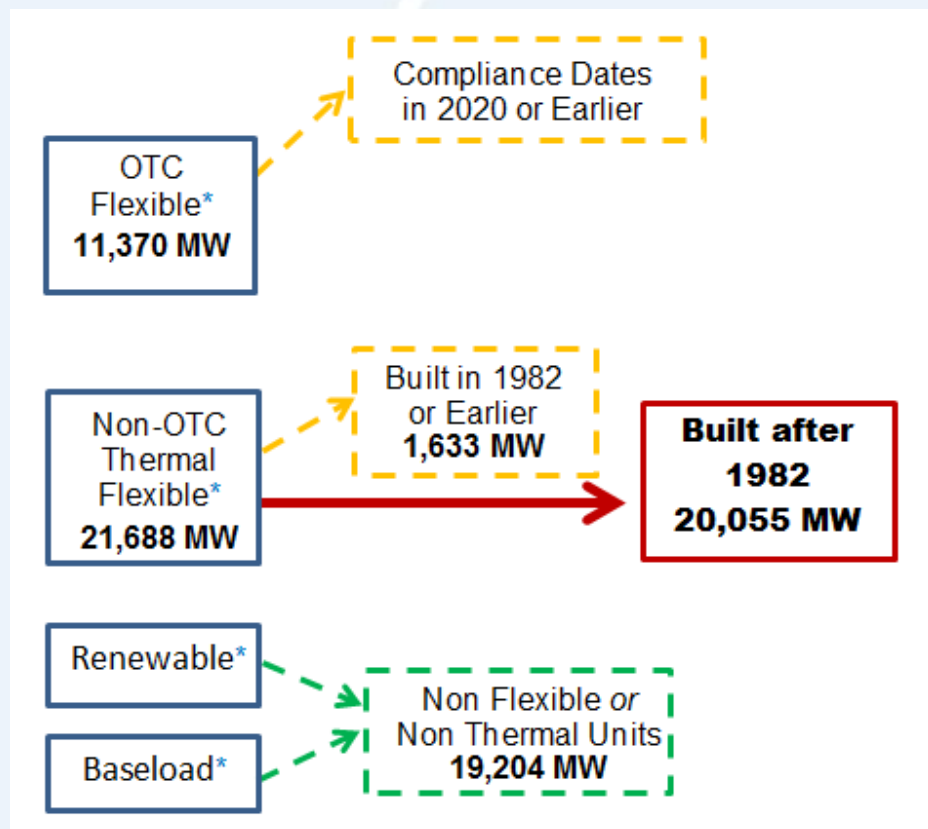
3. Renewables and Baseload: non flexible *or* non thermal units

- ORA assumes these units are not at risk of retirement because of RPS goals or, in the case of baseload, their place in the resource stack





Assessing the Risk of Early Retirement

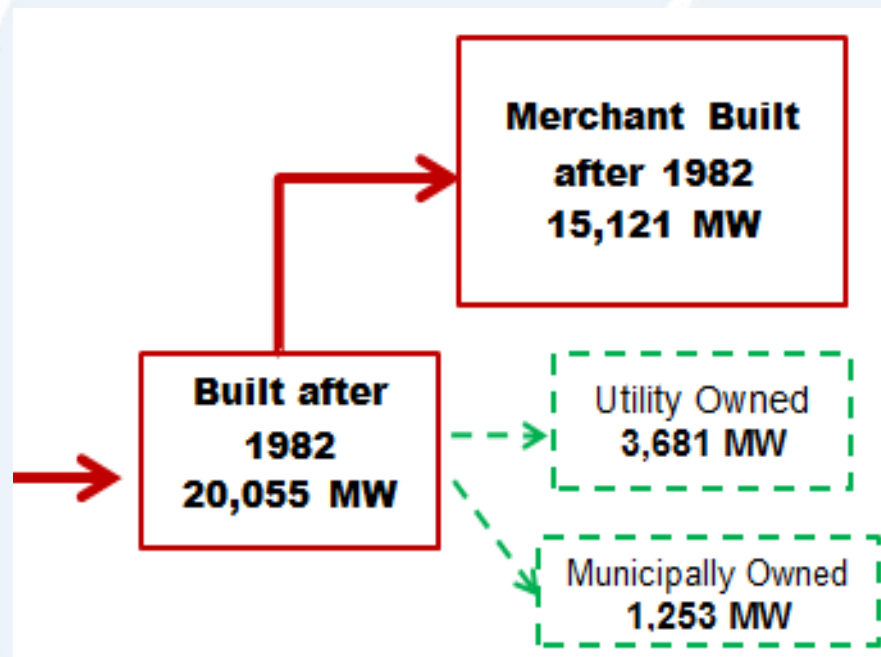


* Definition of flexible capacity based on D.13-06-024. MW Amounts are Net Qualifying Capacity (NQC) from 2014 NQC List for the month of August.





Assessing the Risk of Early Retirement

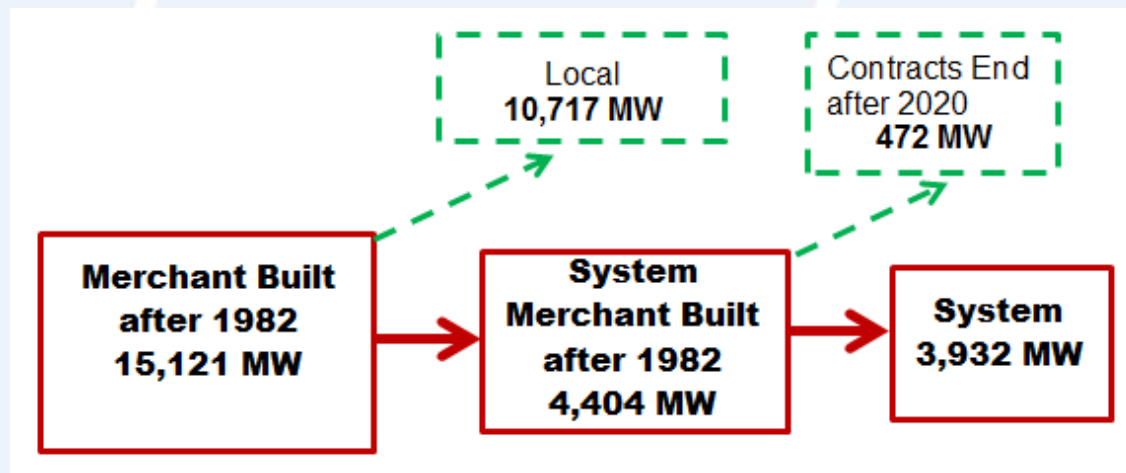


ORA assumes that Utility and Municipally Owned Flexible Thermal Units built after 1982 will not retire due to revenue certainty





Assessing the Risk of Early Retirement



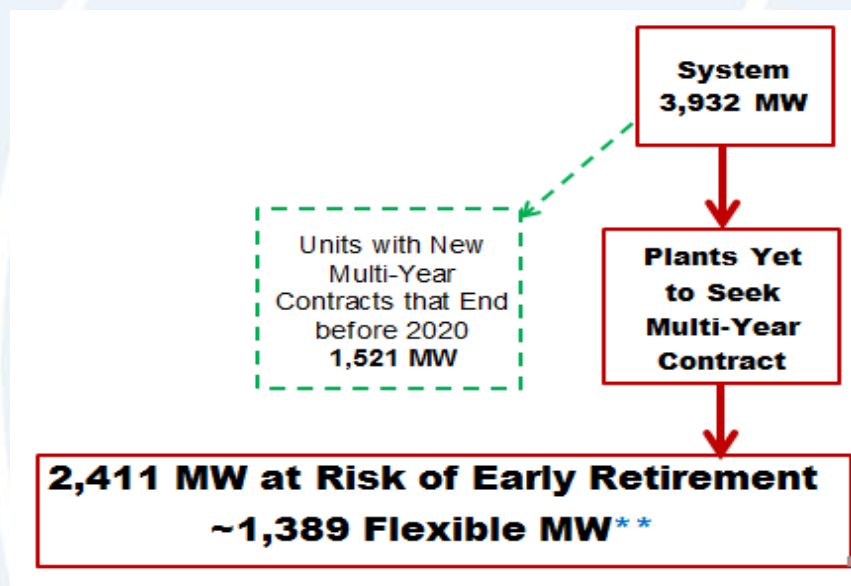
ORA further assumes that:

- Local resources will not retire due to local RA capacity premium
- Resources that are under long-term capacity contracts beyond 2020 are not at risk of early retirement because their contracts expire after OTC mandated compliance deadlines





Assessing the Risk of Early Retirement



ORA's final assumption:

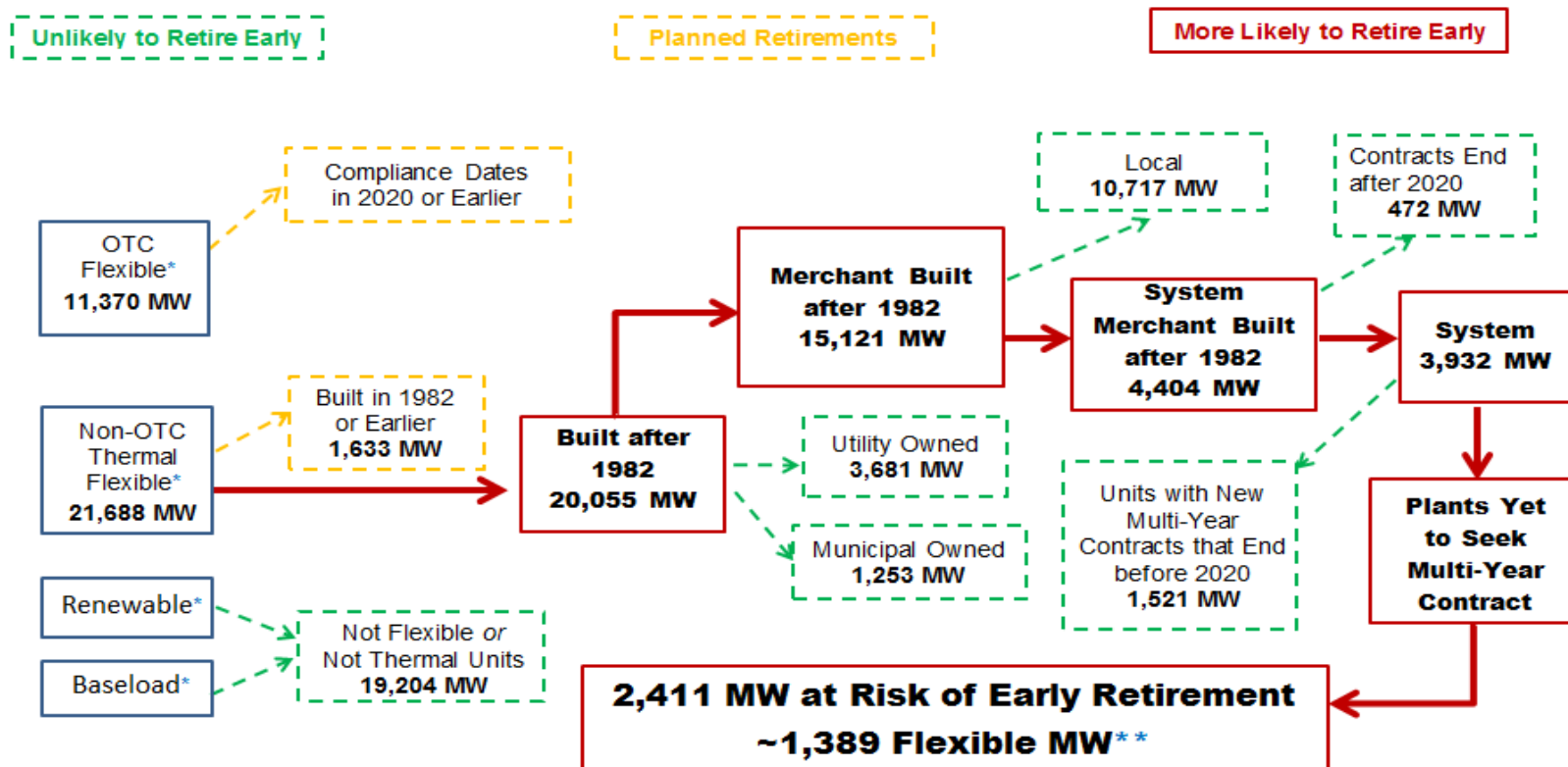
- Of the 3,932 MW, some of the units successfully bid into previous RFOs and were able to acquire multi-year contracts. Therefore, it is reasonable to assume that these units will continue to be successful in obtaining new contracts in the future

** Flexible MW Amount based on CAISO's Effective Capacity Report for 2014 Compliance Year.





BRINGING IT ALL TOGETHER...



* Definition of flexible capacity based on D.13-06-024. MW Amounts are Net Qualifying Capacity (NQC) from 2014 NQC List.

** Flexible MW Amount based on CAISO's Effective Capacity Report for 2014 Compliance Year.





Ceiling, not a Floor

The 2,411 MW at risk of early retirement is a ceiling, not a floor

- It is very unlikely that all plants will retire at the same time
- As of now, only 400 MW of these resources are not contracted with any of the IOUs; it is unclear if these resources are contracted with other LSEs
- About 500 MW of these resources are under long-term PPAs until mid-2020
- The remaining resources representing 1,500 MW are contracted on a year-by-year basis





Concluding Remarks

- The 2,411 MW at risk of early retirement is a ceiling, not a floor
- The earlier OTC plants retire before their mandatory compliance deadlines, the lower the risk of early retirements (*ex. Morro Bay*)
- The closer we get to OTC mandatory compliance deadlines, the lower the risk of early retirements
(*ORA used 2020 year as a cutoff year, however 45% of 11,370 OTC MWs will need to comply by the end of 2017*)





Reliability Planning Assessment Should Inform Multi-Year RA Decision

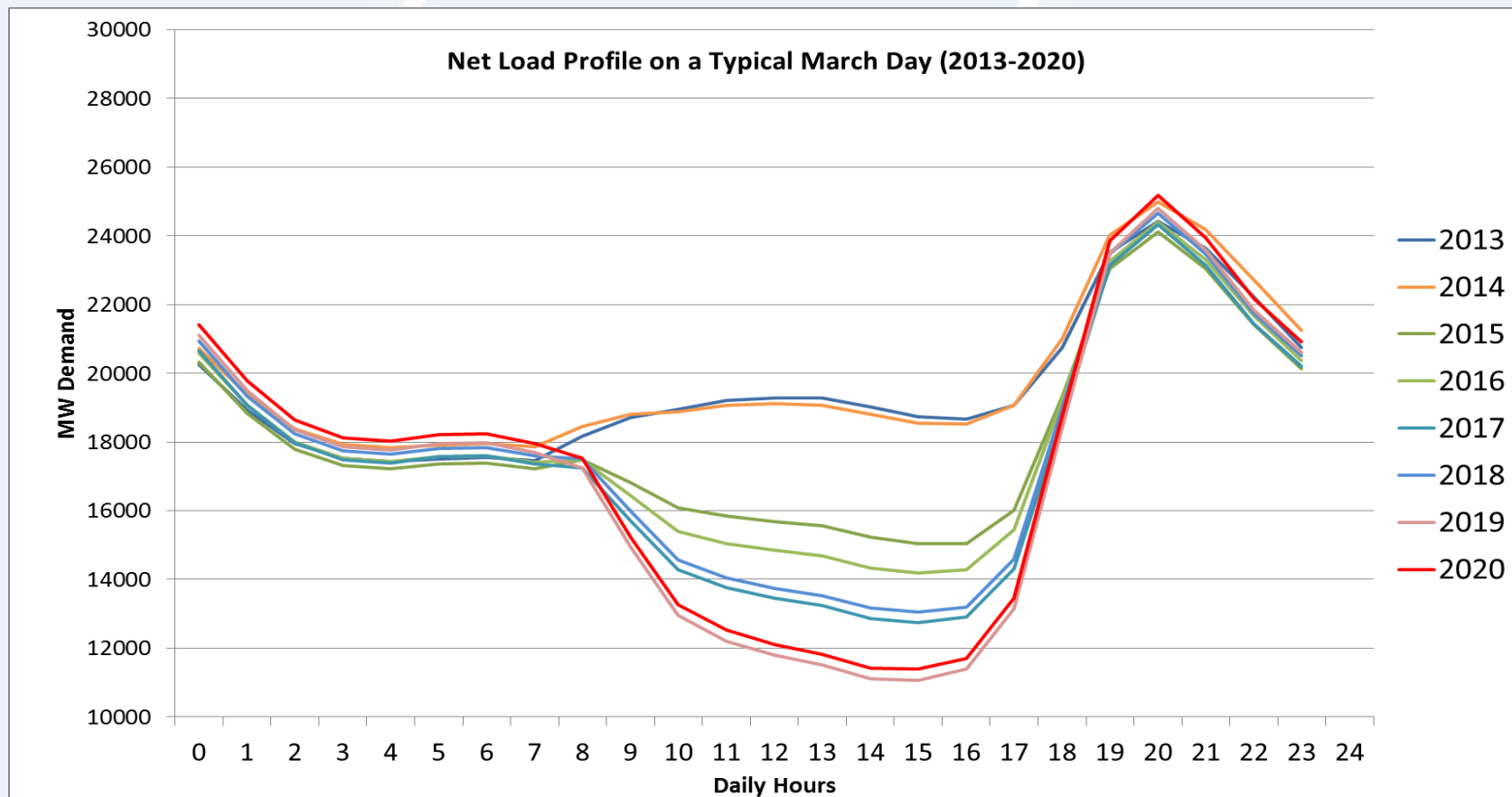
ORA Recommendation #1: JRP OIR Track 2 reliability planning assessment should inform Track 1 decision

- Compare expected resource needs against two views of supply: the installed fleet (including expected additions minus expected retirements) and the already procured fleet (resources that are owned by the utilities or are under long-term contracts)
- To the extent possible, leverage 2014 LTPP Operational Flexibility studies to look at needs for earlier years (2015 through 2017) over which a potential Multi-Year RA procurement mechanism could apply





CAISO “Duck Chart” Only Shows Demand for Flexibility – Not Supply

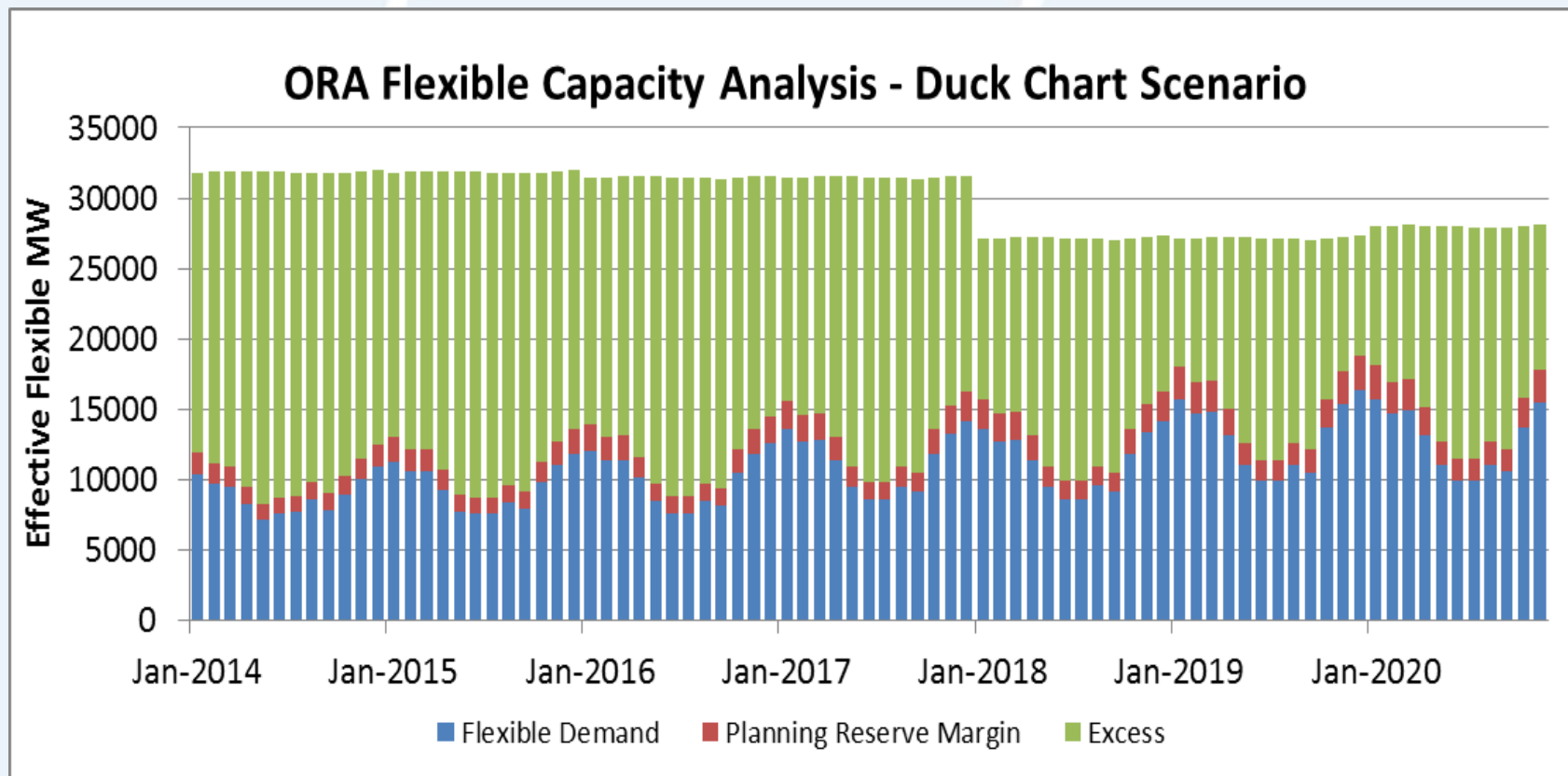


Source: Reproduced from Figure 1, Joint Parties Proposal, p. 5, available at <http://www.caiso.com/Documents/JointPartiesProposalResourceAdequacyFlexibleCapacityProcurementOct292012.pdf>





Supply of Flexible Capacity Exceeds Demand Plus Planning Reserve Margin



Source: Flexible demand based on CAISO "Duck Chart," Effective Flexible MW supply based on CAISO's Final Effective Flexible Capacity Report for Compliance Year 2014





CAISO Should Be Informed of the Magnitude of Forward Capacity Procurement

ORA Recommendation #2: CPUC and other LRAs should provide CAISO with information access to RA contracts

This would provide CAISO with information on the magnitude of forward capacity procurement and the available capacity in the forward capacity market





Forward Capacity Procurement Occurs Under the Current RA Framework

- While current RA Framework requires a year-ahead demonstration that each LSE has procured adequate capacity for the coming year, the reality is that IOUs – and other LSEs - procure multi-year RA capacity contracts to hedge against higher future prices
- IOU and LSE compliance with RA capacity obligations has maintained grid reliability





Magnitude of Forward Capacity Procurement

1. RA program

- Significant forward procurement for years 2-5

2. Short-Term Procurement Planning

- Bundled procurement plans result in forward procurement for years 2-5

3. Long-Term Procurement Planning

- New conventional generation resources operational as early as year 5 (Pio Pico, e.g.)
- Preferred resources authorized in Tracks 1 and 4 of the 2012 LTPP can be developed over a 1-3 year timeframe





Magnitude of Forward Capacity Procurement - Continued

4. Existing long-term procurement mechanisms

- Renewables
- Qualifying Facilities / Combined Heat and Power
- Other Preferred Resources
- Utility-Owned Generation
- Existing Long-Term Conventional Contracts

